

Sample Paper

Biochemistry & Clinical Pathology

D. PHARMA 2nd YEAR

TIME 03:00 HOURS

MAXIMUM MARKS: 80

PART - A

Long Answers (Answer 6 out of 7) =

6 x 5 = 30

- Q.1. What are qualitative tests used to identify the presence of carbohydrates? Can you explain how these tests work and provide examples?
- Q.2. What is the definition of carbohydrates and how are they classified? Can you provide examples of each classification?
- Q.3. What are the biological roles of proteins and amino acids in living organisms? How do they contribute to various physiological processes and functions?
- Q.4. Explain about the lipid profile (LDL, HDL, VLDL, Triglyceride,
- Q.5. What are lipoproteins, and what are the different types? Can you describe their composition and functions within the body, particularly in relation to lipid transport and metabolism?
- Q.6. What is the definition of nucleic acids, and what role do they play in living organisms?
- Q.7. Write the significance of pathology of blood and urine.

PART – B

Short Answers (Answer 10 out of 12)

10 x 3 = 30

- Q.1. How can the analysis of blood and urine aid in diagnosing diseases?
- Q.2. Describe the structure of glucose, fructose, and galactose.
- Q.3. List the commonly performed tests to assess liver function and elaborate on their clinical significances.
- Q.4. What is biotechnology, and what are its key principles?
- Q.5. Discuss the key functions of water in the human body.
- Q.6. What are minerals, and what are their essential functions in the body?
- Q.7. What is metabolism, and why is it important for living organisms?
- Q.8. Discuss the sources of vitamins and their chemical nature.
- Q.9. Describe the functions of vitamins in the human body.
- Q.10. Explain the Watson and Crick model.

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Q.11. Classify the nitrogen bases in the nucleotides.

Q.12. Qualitative tests and biological role of protein and amino acids.

PART-C

Multiple Choice Questions:

Answer all questions. Each question carries equal marks.

20×1= 20 marks

1. What is the general term used for the breakdown of amino acids in the body?

- a) Dehydration synthesis b) Hydrolysis
c) Transamination d) Oxidation

2. Which complex of the electron transport chain transfers electrons to molecular oxygen?

- a) Complex I b) Complex II c) Complex III d) Complex IV

3. Which enzyme is involved in the conversion of ammonia into urea in the urea cycle?

- a) Glutamine synthetase b) Carbamoyl phosphate synthetase I
c) Ornithine transcarbamylase d) Arginase

4. Which process involves the oxidation of fatty acids to produce acetyl-CoA molecules?

- a) Ketogenesis b) Lipolysis c) β -oxidation d) Glycogenesis

5. Which of the following is a water-soluble vitamin?

- a) Vitamin A b) Vitamin D
c) Vitamin K d) Vitamin B12

6. How are vitamins classified?

- a) By their chemical structure b) By their solubility in water or fat
c) By their role as coenzymes d) By their source in the diet

7. Which mineral is required for the synthesis of DNA, energy production, and bone formation?

- a) Calcium b) Phosphorus
c) Iron d) Sodium

8. What is the function of iron in the body?

- a) Formation of strong bones and teeth b) Energy production
c) Production of red blood cells d) Regulation of blood pressure

9. Which factor does not affect enzyme activity?

- a) Temperature b) pH
c) Substrate concentration d) Pressure

10. Which property is not characteristic of enzymes?

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- a) Specificity b) Stability
- c) Efficiency d) **Regulation**

11. What is the definition of enzymes?

- a) Inorganic molecules that catalyze chemical reactions
- b) Biological catalysts that accelerate chemical reactions in living organisms**
- c) Structural proteins found in the cell membrane
- d) Hormones involved in signal transduction pathways

12. What is the recommended daily intake of calcium for adults?

- a) 500 mg b) **1000 mg** c) 1500 mg d) 2000 mg

13. What is oral rehydration therapy?

- a. A method of replenishing fluids and electrolytes in the body using oral solutions**
- b. A method of replenishing fluids and electrolytes in the body using intravenous fluids
- c. A method of removing excess fluids and electrolytes from the body using diuretics
- d. A method of treating dehydration by restricting fluid intake

14. Which of the following tests is used to assess liver function?

- a) Blood glucose test b) Complete blood count (CBC)
- c) Liver function tests (LFTs)** d) Electrolyte panel

15. What is the normal range for pH in urine?

- a) 4.0-5.5 b) **6.0-7.5** c) 8.0-9.0 d) 10.0-11.0

16. The Watson-Crick model describes the structure of:

- a) DNA** b) RNA c) Both DNA and RNA d) None of the above

17. Which of the following is an example of a nucleoside?

- a) Adenosine** b) Adenine c) Adenylate d) Adenosine triphosphate

18. Lipoproteins are complex particles composed of lipids and proteins. Which of the following is a type of lipoprotein?

- a) HDL (High-Density Lipoprotein) b) LDL (Low-Density Lipoprotein)
- c) VLDL (Very Low-Density Lipoprotein) d) **All of the above**

19. Proteins are classified based on their composition and solubility. Which of the following is an example of a fibrous protein?

- a) Hemoglobin **b) Collagen** c) Insulin d) Enzymes

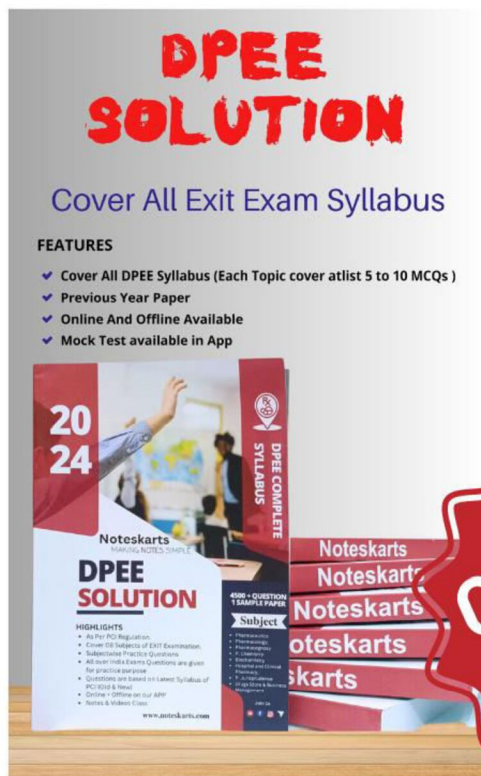
20. Diseases related to malnutrition of proteins include:

- a) Scurvy b) Pellagra c) **Marasmus** d) Rickets

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